Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

BUREAU OF ENTOMOLOGY
★ JUN 9 - 1925 ★
RECEIVED

WESTERN DIVISION NEWS LETTER
Forest Insect Investigations, Bureau of Entomology
U.S. Department of Agriculture
(not for publication)

Palo Alto, California - June 1, 1925.

FUTURE COOPERATIVE CONTROL PROJECT ORGANIZATION*

By - T.D. Woodbury, Assistant District Forester
District 5 - U.S. Forest Service.

For the past fifteen years I have been vitally interested in all factors affecting the welfare of the forests of California. The problem of insect control during this period has been one of the most interesting and yet one of the most baffling with which I have had to deal. It has been a football for theorists, and a favorite bone of contention among Foresters, Lumbermen and Entomologists. We can see and ascertain readily the amount of damage done by our little copper colored enemies, but just why they wax fat and prosperous during one brief period and then decrease in numbers just as rapidly, has been a problem that we could not solve. Without knowing the strategy of our enemies our attacks have naturally been rather feeble and sporadic. The results of these attacks have often been difficult to appraise. We have frequently been obliged to content ourselves with the simple argument that since the damage was caused by certain types of beetles the more beetles of this type we could lay low the less would be the damage. Although it is difficult to find a weak spot in this theory as a practical matter it has not always stood the test. After a particularly vicious assault the beetles have occasionally responded with a counter offensive which has left us weak, baffled, and almost defenseless. It is this uncertainty as to the habits of the beetles and the effectiveness of the generally accepted methods of control that has caused a considerable group of foresters and timber owners to question the wisdom of spending large sums in insect control. Confused by numerous theories, none of which could be made to fit the facts in all cases, they have resigned themselves to what they have considered a certain inevitable loss; just as one becomes reconciled to the results of the operation of certain laws of nature.

While this attitude is perhaps natural it cannot be tolerated by any who are charged with the protection of our forests. Each defeat should stimulate our determination to solve the problem of the habits of our enemy and to work out an attack which will hold the damage done down to a minimum which will not be a serious drain upon the forest.

*Excerpts from paper read before the Forest Insect Conference at Berkeley, California, February 5, 1922.

What future action is necessary in order to make the cooperative campaign of forest owners against their common enemy most effective? Three lines of procedure are clearly indicated; experimentation, education, and legislation. I place experimentation first advisedly. Before we can spend money on insect control to the best advantage we must know more of the habits of the beetles. We must know how far they fly and what barriers they can overcome before we can lay out the boundaries of a control project intelligently. We must know the numbers of broods of various beetles to be expected annually under various sets of conditions so that our control work may be properly timed. We must ascertain the effectiveness of and the best methods of conducting maintonance control and determine the roll played by birds and predatory insects in the control of infestations.

These are only a few of the experiments which suggest themselves. The field is large. Control work cannot await the results of these experiments when large values are being lost annually. Experimentation should proceed side by side with control. Each large cooperative control project offers a field for experiment. An investigator should be a part of the personnel of each project and funds and means should be provided for making his work successful. He should be responsible for seeing to it that new methods tried out which give fair promise of success are adopted in the control technique. This phase of the work is one which the Bureau of Entomology is eminently well fitted to handle.

Next to experimentation the most vital factor contributing to the success of control work is education. This has several phases. Land owners must be educated in the habits of the beetles and the destruction done by them before they will loosen their purse strings and give the financial aid so vital to the success of every cooperative project. The general public must be educated for a public sentiment is necessary in order to stimulate land owners into action and to secure general legislation when necessary. The men who work in the woods must be educated to detect insect damage from the various types of beetles and must understand the generally accepted methods of control.

I am looking forward to the day in the Forest Service when every Forest Supervisor will be as alert and well informed regarding insect injury and the need for and methods of control as they are now regarding fire. This attitude and knowledge will have been passed on from the Supervisor and his technical assistant to the ranger. The ranger in turn will each year report insect conditions in his district as he now reports grazing and fire conditions. Needed insect control will be shown in each Supervisor's allotment for insect control as he does now for fire control. This will be apportioned to Forests according to needs and at the appropriate time of year the necessary control work will be performed by a control crew working under the ranger's direction. When this much to be desired time arrives we shall certainly have old man John L. Dendroctonus on the run. Before that day arrives we have a good many rivers to cross but a liberal education all along the line as outlined above will help tremendously in reaching our objective.

To sum up: Insect control project organization of the future should comprise provision for experimental work by a trained entomologist or entomologists, and the prompt incorporation of the results of experiment into the plan of control. The project plan should provide for maintenance of controlled conditions after the first clean-up has been made.

Education of the public, of timber owners, of forest managers and legislators is essential in order that the importance of insect control may be recognized and provision made for carrying it on energetically and skillfully.

State legislation must be secured in all states where insect control is necessary in order that infested areas may be cleaned up satisfactorily and that owners who are willing and desirous of protecting their forests may not be prevented from effectively doing so by the few who are unwilling.

I look for an increasing appreciation of the necessity for control on the part of land owners, for closer and more effective cooperation in control among such owners, for a constant improvement in the technique of control brought about by intelligent investigation. Insect control work will, in my opinion, soon come to be recognized as a necessity among owners of pine stumpage and the cost of control will be taken into account as a carrying charge just as fire protection now is.

WHO SAYS THE FOREST ENTOMOLOGIST IS USELESS?

In California the shipment of queen bees by mail is an important industry. Each queen is shipped, with a few workers in a wooden block which contains several connected auger holes for living quarters. Recently it was put up to the Railway Mail Service that the present method of throwing the queen cages into the sacks with letters, papers and other mail was not advisable and should be stopped. Desiring expert advice before deciding the problem, the Mail Service called on the Palo Alto Forest Entomologists. Why not - isn't the block a forest product?

H.E.B.

Field Entomology -

Entomologist: "How many legs has an insect?"
Senior Scientific Aid: "Sometimes none; often one, two, three and four; very rarely five and never six."
Entomologist: "Where did you get this extraordinary information?"
Senior Scientific Aid: "From a close study of the station collection."

Adopted.

FLYING ANTS IN BUILDINGS.

Each spring or fall, numerous small flying ants (our native termites or white ants) emerge from the woodwork of buildings that have not been properly constructed. They have entered the woodwork of the buildings because, somewhere, there is untreated wood in contact with the ground.

Recently, the Bureau of Entomology has been advocating slight modifications of the building regulations of various cities in efforts to prevent attack by these insects. No untreated wood should be laid on or in the earth, and untreated beams should have at least an inch of concrete between them and the earth. Where it is desired to put wood in direct contact with the earth, it should first be impregnated with coal tar creosote. If this is not practical there should be foundations of concrete or stone. No lime mortar should be used in brick work in foundations of buildings, since termites are able to penetrate lime mortar after a few years' service. Such brick work, either on or extending below the surface of the ground, should be faced and capped with concrete at least one inch thick.

Termites are not like ants, which can be killed by insecticides or fumigation. They must be prevented from getting into the building from the ground by means of their hidden burrows through untreated woodwork.

The Department of Agriculture has received as many as 200 requests this year for help in getting rid of these flying ants. It is a great hardship for a householder on a moderate salary to have to spend several hundred dollars one or two years after purchasing a building because of damage by termites. The fault is with the architect or contractor and the householder should not have to pay. By insisting on complete insulation of all untreated woodwork from the ground, insurance against attack by termites can be secured.

T.E.S.

"PORTYGEE BUGS"

Former Entomological Ranger, J.D. Riggs called on the Palo Alto Laboratory May 10th. Riggs has been dredging for tin in the Tagus Valley of Portugal for the past three years. He says that there are extensive pine forests on the slopes of the Sierra de Estrellas. Some appear to be natural and some are planted. While on the whole the forests are in good condition, some insect work was noticed. Similar work to that of the turpentine beetle was found at the bases of the trees and work like the western pine beetle above. In some areas the young trees were extensively defoliated by a tent making caterpillar. At present Riggs is working for the Pacific Gas and Electric Company at San Francisco.

H.E.B.

AN OUTLINE OF FOREST INSECT ACTIVITIES IN THE EAST FOR THE SUMMER OF 1925.

The demand for enlarged activities in the study of forest insect problems in the eastern states, particularly in cooperation with the Forest Service Experiment Stations, has been steadily increasing. Last year a beginning was made by means of a cooperative arrangement with the University of Minnesota and Lake States Experiment Station and now it seems possible to include the Northeastern and Appalachian stations in this summer's program.

The eastern problems assume a somewhat different aspect from those of the West, where with mature forests, the whys and wherefors of barkbeetle control overshadow everything else. Here, with second growth forests, we are more concerned with the avoidance of insect damage through management and silvicultural practices. Consequently closer contacts with the research activities of the Forest Service are required and the investigations take on a strong ecological aspect. It has been decided that the best policy in extending this work is to limit the number of projects, concentrating on a few that coincide with major problems of the experiment stations. It is believed that such a policy will bring quicker results than if our efforts are disseminated over too many projects.

Dr. Graham's work in Minnesota will continue much as last year. The Halsey, Nebraska tip moth studies are well under way with the appointment of Mr. L.G. Baumhofer as field assistant. Fumigating and dipping tests to prevent the spread of this serious insect into the western portion of the area are being conducted at Halsey and Mr. R.A. Cushman is collecting and rearing parasites at East Falls Church, Va., for introduction. This parasite experiment is hoped to show most interesting developments. Dr. Graham is also continuing his studies of the jack pine sawfly and spruce budworm. In the latter project the relation between mortality, type, site and rate of growth will receive special attention.

Through the efforts of Dr. R.T. Fisher, Director of Harvard Forest, $2,500 per year for two years has been donated by Massachusetts timberland owners for the further investigation of the white pine weevil. Mr. H.J. MacAloney has been appointed in charge of a field station at Amherst, Mass., with a laboratory base at Petersham on the Harvard Forest. Mr. Donald DeLeon has been appointed as a field assistant on this work. The main features of this problem, as agreed upon at a conference at Amherst, will be a survey of plantations in second growth stands from Pennsylvania north into Canada, to determine, if possible, the factors producing immunity of certain stands. Age, rate of growth, density, species mixtures, site and location will be some of the factors analyzed. Dr. Swaine is cooperating in the extension of this work into Canada. Direct control experiments and studies of the parasites will also be conducted.

Mr. James A. Beal has been appointed as field assistant at this station to study the entomological aspects of slash disposal in cooperation

with the Division of Forest Pathology of the Bureau of Plant Industry and Northeastern Forest Experiment Station. For the present summer this work will consist largely in studying the deterioration of white pine slash under normal conditions as contrasted to caged piles where insects are excluded. Undoubtedly the insects play an important part in mechanical breaking of the slash and it is believed that they also favor the rapid penetration of fungi through the wood. Some time will also be devoted to biological studies of the larch sawfly.

It has been announced that the Maine legislature has made available funds for carrying Mr. H.B. Peirson as State Forest Entomologist. His chief problem will be a continued study of the spruce budworm as well as several other miscellaneous insects of less importance.

The work at Asheville, N.C., for the present represents an extension of the East Falls Church, Va., activities. Mr. St. George will be stationed at Asheville in charge, assisted by Mr. A.H. MacAndrews, appointed as a field assistant. Dr. E.J. Kraus of the University of Wisconsin will devote part of the summer to certain plant physiological aspects of the work. Pine problems, the result of which studies should be applicable to the Coastal Plains as well as to the Piedmont region, will receive chief attention. The insects concerned are - Dendroctonus frontalis, D.valens, Ips avulsus, I.grandicollis and I.calligraphus. The investigations here will be of a more detailed character than anything previously undertaken in an attempt to analyze the environmental factors governing barkbeetle epidemics, the relation of the tree itself to barkbeetle attack and brood development, particularly the effects of drought. Several groups of large trees will be deprived of moisture and the resulting changes compared with checks, as to sap density, moisture content of the inner bark, leaves and soil, and the attack and development of barkbeetle broods. One plot will be watered after attack. Two trees will be fitted with dendrographs in order to more fully measure the responses, particularly after barkbeetle attack. In addition barkbeetle activities will be observed on a series of trees treated during the summer by felling and girdling, scorching and killing by the application of salt. Several observation stations are being established to compare the climatic and soil conditions, sap density and moisture content of the trees in two contrasting types - one, where barkbeetle epidemics originate; the other, where barkbeetle outbreaks never occur. This is a joint study involving other projects of the Appalachian Experiment Station directed by Mr. C.F. Korstian and Mr. E.F. McCarthy.

Several sample plots are also being laid out on recent pine and hardwood burns to determine the relation of insects to the death of these trees and the possibility of using insects as early indicators of the subsequent death of the tree or portions of it.

F.C.C.

NEWS FROM OREGON AND WASHINGTON

The Metolius Situation:

The Forester has allotted $800.00 to this District for the study of the situation in the Metolius region of the Deschutes National Forest in central Oregon. The work will have two purposes, namely, to secure the data on which to determine the need and extent of control operations and to make a quantitative analysis of the brevicomis mortality last winter. The work will be done in May and June. It had been hoped that the Bureau could undertake this work.

Field Plans:

Field plans, as recently approved, provide for the following field work for me during the period May 19 to November 25:

1. Examination of epidemic brevicomis and monticolae infestations to determine possible need of control operations on the Chelan National Forest in eastern Washington and the Malheur, Deschutes, Ochoco and Whitman National Forests in Oregon.

2. Completion of insect survey of western yellow pine in Oregon and Washington, two thirds of which was finished in 1923 and 1924.

3. Fourth annual brevicomis survey of yellow pine in Klamath and Lake counties in southern Oregon in cooperation with the Klamath Forest Protective Association. This includes three million acres of timber land outside of the southern Oregon pine beetle control project.

4. Study of Douglas fir areas on Mt. Baker and Olympic National Forests in northwestern Washington to ascertain the prevalence of D. pseudotsugae outbreaks similar to those now active in southwestern British Columbia.

A.J.J.

A RECENT PUBLICATION.

"Forest Insects of Australia" by W.W. Froggatt, Government Entomologist, New South Wales and published by the Forestry Commission, Sydney, Australia is a beautifully illustrated publication of 170 pages that will prove of interest to forest entomologists everywhere.

A.J.J.

BURNING BEETLES PROVES SUCCESSFUL IN KAIBAB CONTROL.

Up to the present time, the standard method of control employed in combatting the Black Hills beetle was the peeling of bark from the infested trees and allowing the sun and exposure to bring death to the beetles in their various stages.

On the campaign against this beetle on the Kaibab plateau in northern Arizona, for the 1925 season, scorching of the bark without peeling was substituted for the peeling method on a portion of the area. It was planned to carry on this work only on the Grand Canyon National Park unit but the Forest Service were impressed with the possibilities of the method and abandoned the peeling work in its favor. Immediately the daily treatment of about 50 trees per day jumped to 75 trees per day. A hundred percent kill was obtained in all logs examined and the slash created by the cutting was neatly disposed of. All of the men who were previously skeptical of the method are now very enthusiastic.

The cruising of territory treated last year by the peeling method shows a 50% reinfestation. In nearly every case this new infestation can be traced to a nearby group where many exit holes in tops and limbs show that many beetles escaped the peeling.

An added complication to this year's work was the discovery that many of the trees cut in last year's operation were heavily infested with beetles in the stages of larvae, pupal and overwintered new adults. These trees were those only partially attacked last year, with green tops which acted as trap trees to attract the beetles emerging last August. This is another point in favor of the burning method, since no tops are left to catch a straggling emergence from trees missed in control. So far very little difficulty has been experienced in handling the fires.

Along the Grand Canyon Highway the Forest Service will also try out the method suggested by Dr. Craighead of exposing the logs to the sun's rays for 15 days or more and then rolling the logs to secure a kill on the other half.

F.P.K.

CLIMATE VERSUS CONTROL WORK AT LAKE ARROWHEAD.

An unusual amount of "unusual" California weather was encountered during the control work on the Arrowhead Lake area, against the western pine beetle in yellow pine and coulter pine during March and the first part of April. After a warm, open winter with very little precipitation, either rain or snow, it required only the beginning of the control work to start a record breaking series of snow storms. During the six weeks of the work, eight full days were lost because of the snow and the work was seriously handicapped on

as many more. In some cases trees were peeled and prepared for burning and then left until the weather cleared. Over a foot of snow fell during one of the storms.

The rate at which this snow disappeared was as remarkable as the amount of snow. The one fire that got away was started from a tree practically surrounded by banks of snow which was treated only a week after a snow storm that delayed the work two or three days. On the bushy south exposures the fire hazard became high in some cases only four days after a snow storm. One day pitch tubes would be used to get a good burn, and two or three days later all the limbs would have to be thrown out and an elaborate fire line prepared to prevent a forest fire. The answer to this difficulty seems to be, late fall or winter control work only on days when burning conditions are favorable.

H.L.P.

SPOTTING BUG TREES AT 13,000 FEET.

During the period May 3 to 6, Lieutenant W.R. Taylor of the 15th Photo Section of the Air Service made a trip to Northfork and went over the ground to be covered in the air survey of the San Joaquin areas. Tests were made of the hyper-sensitized panchromatic films and the filters used by the Air Service in photographic mapping. These tests demonstrated that, under the right light conditions, the sorrel and red trees could be registered in contrast to the normal green trees of the forest.

Plans were made to carry out the survey early in May. Three different dates were set for the flight but each time storms and unfavorable weather conditions made postponment necessary. For a time it seemed as though the project would dissolve in rain and Pacific Coast fog. A final attempt was set for May 26th and this time the weather gods were favorable. At 10:00 A.M. two DeHaviland Army planes left Crissey Field at San Francisco, heading straight as the crow flies for the San Joaquin areas. In one hour and twentyfive minutes they were over the infested area at Bass Lake. This incidently, is some time record as the best that has been done by any other means of transportation amounts to about nine hours.

One of these planes, piloted by Lieutenant Taylor carried the mapping camera and the operator from Crissey Field. The other traveled as an observation plane and was piloted by Sergeant Fowler. The rear cockpit of this plane was occupied by the party whose initials appear at the bottom of this news note and an effort was made to spot on a map the infestation as it could be seen, the object being to test out the observation as well as the photographic method.

The areas were at an elevation of 3500 to 4500 feet and the photographs were taken from an elevation of about 12,500 feet. The observation plane kept about 500 feet above this to allow for the maneuvering of the other ship for photographs. About one hour was spent over the areas and altogether

nearly twenty square miles were photographed. The return trip to Crissey Field required over two hours due to a strong head wind. A landing was made at Modesto for lunch and the planes landed at the base field at 4:30 P.M.

A report on the results of the expedition will have to wait until the Air Service Laboratory finishes the pictures. These will be out in a few days. In viewing the areas from the air the red and sorrel trees stood out in strong contrast and an excellent idea of the general distribution of the infestation was formed. I do not maintain that I got anything like twenty-five per cent of the bug trees on the map or that many of those I did get were near their correct location. I do not doubt but that someone familiar with this sort of work from the air would have been more effective as an observer.

J.M.M.

STATION ACTIVITIES.

Ashland, Oregon

A survey crew consisting of Assistant Scientific Aid W.J. Buckhorn and Field Assistants I.J. Hastings and Roy McNeill started the annual spring survey of the Southern Oregon-Northern California Control Project, May 1st.

J.E. Patterson spent some time with the survey crew and made preparations for the Crater Lake Mountain Pine Beetle control project which is expected to start about June 1st.

Coeur d'Alene, Idaho

On May 5th and 6th Messrs. Evenden and Rust, accompanied by Forest Supervisor Abbott and Deputy Supervisor Broadbent, made an examination of the Magpie Creek Project, Helena National Forest. Though the infestation has decreased in severity during the past year it was decided to institute control measures for the protection of the remaining timber. This work started on May 11th and is under the direct supervision of the Forest Supervisor.

On May 4th a conference with the District Forester was held in Missoula, Montana, relative to the plans for the Bitterroot-Big Hole Basin control project. The survey of the East Fork of the Bitterroot started on May 11th and control work will start about the 20th. This work will be delayed considerably due to the snow on the higher elevation. It is expected that it will be the first of June before work can start in the Big Hole Basin.

Work on the Independence Creek Project, Coeur d'Alene National Forest will start on the 21st of May and will be completed by June 1st. Mr. Evenden, with the assistance of Mr. Rust, will be in charge of both the Montana and Idaho projects.

Miss Okerstrom's temporary appointment as Junior Clerk, Stenographer at this station expired on May 15th. This was truly our loss, and we dread to think of the callouses returning to our two finger tips.

Kanab, Utah

Edmonston and Hofer are now established in camp at Mile and Half on the Kaibab National Forest. They are carrying on intensive rearing experiments with the Black Hills beetle.

Keen is spending his time between Greenland Point in the Grand Canyon National Park and Jacob Lake in the Kaibab National Forest directing the control work against the Black Hills beetle carried on by the National Park Service and the Forest Service.

Palo Alto, Calif.

Wagner and Morrow spent the month surveying the Bass Lake check unit on the San Joaquin Experimental Control Project near Northfork. Full notes were taken on all of the insect killed trees, increment borings were also taken from these trees and from nearby living trees which had escaped barkbeetle attacks.

Person spent the month in the hospital and in convalescing from a severe attack of intestinal "flu". We are glad to announce that he is ready for the field again. He left Palo Alto for Northfork the 24th. Site studies and investigational work on the Cascadel Unit of the San Joaquin Project will occupy Person's time for the next few weeks.

Burke carried on some rearing experiments with the Monterey Pine Sawfly, worked up a manuscript on the Western Cedar Pole Borer, and assisted several arboriculturists to spray for the control of various shade tree pests.

Miller spent the period from April 30 to May 10 on the San Joaquin areas at Northfork. Part of this time was spent with Morrow and Wagner on the spring cruise of check units and the remainder in going over the project areas with the officers of the 15th Photo Section, Air Service, U.S. Army.

SUMMER ADDRESSES.

J.E. Patterson - Ashland, Oregon
J.C. Evenden, H.J. Rust - Coeur d'Alene, Idaho.
F.P. Keen, W.D. Edmonston, Geo. Hofer - Kanab, Utah.
W.J. Buckhorn - Klamath Falls, Oregon.
H.L. Person, Earl Morrow, Albert Wagner - Northfork, Calif.
J.M. Miller - Palo Alto, Calif.
H.E. Burke - West Yellowstone, Wyo.

MANUSCRIPTS COMPLETED.

Articles for Publication:

"Tree Selection by the Western Pine Beetle, an Important Factor in Forest Management" - H.L. Person. Submitted to the Department Editor.

"Methods of Estimating Barkbeetle Losses" - J.M. Miller. Approved for publication in The Timberman; to appear in the June issue.

"The Western Cedar Pole-Borer" - H.E. Burke. Submitted for publication in The Timberman.

Special Reports:

"Spring Control Work, Arrowhead Lake Project, 1925" - H.L. Person. A summary of the work carried on cooperatively by the Arrowhead Lake Company, Forest Service and Bureau of Entomology.

"Summary of Brood Counts of D.brevicomis in Yellow Pine Bark" - J.M. Miller. This is a brief analysis of the data which has been secured at the Northfork Station during the season of 1924 and 1925.

'TILL WE MEET AGAIN.

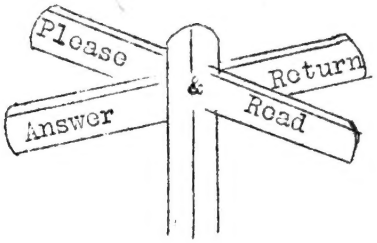
This is the end of the 1924-1925 effort. We intend to inflict our friends again October 1st. Goodbye - here's hoping that we will be just as glad to say "Hello" when October 1st rolls around.

MY QUEST.

I follow the trail.
To find truth ere I rest,
I follow the trail;
Men say I shall fail
In this measureless quest
To find truth ere I rest.
What though I should fail?
I follow the trail.

Irene Hardy.

BUREAU OF ENTOMOLOGY
★ FEB 27 1926 ★
RECEIVED



Our object in getting out the Western News Letter is threefold:

First; to bring all workers interested in forest insects, especially those in the West, into closer contact by telling who they are, where they are, what they are trying to do and when they are doing it.

Second; to spread the knowledge of the profession in an informal way as soon as it is developed. We do not intend to compete with technical journals but we do want to spread many small items of interests and value that would otherwise be lost because never published to others of the profession.

Third; to arouse full discussion on all entomological questions as soon as they arise. We feel that it is much better to talk things over at the beginning than when the work is finished.

We wish every worker in Forest Entomology to feel that the "News Letter" is his. We at the Palo Alto Laboratory will do the mechanical part of the work. It is up to the readers to furnish the news and suggestions for improvements.

Questions we would like you to answer:

1. Q. Are there too many long articles in this issue?
   A. _____

2. Q. Is the "Letter" itself too long?
   A. _____

3. Q. Do you prefer it every month or every two months?
   A. _____

4. Q. What improvements do you suggest?
   A. _____

Answer and return to:

Box 3010,
Stanford University, Calif.